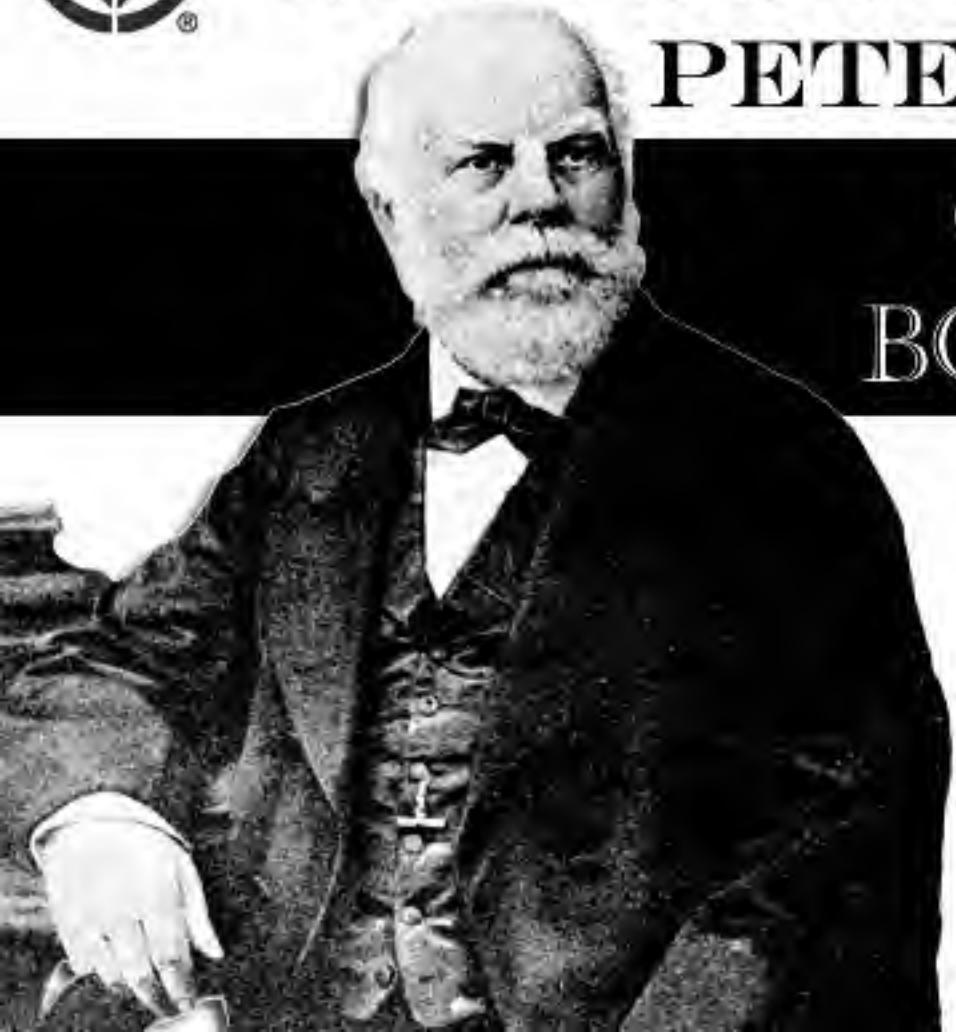




# MISSOURI BOTANICAL GARDEN

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## GEORGE ENGELMANN BOTANICAL NOTEBOOKS

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# Notes of Wright on his Collections of 1852

as South as like gypsum

Echinocactus wrightii. De Pas to Dona  
mosty in valleys  
not east - found also in northern Sonora

E. laevigatus De Pas - El Paso - Dona  
not far west  
stony soil on the side of hills fine purple flowers  
E. albispinus South of El Paso 30-60 miles, - Chihuahua  
on sides of mountains (dry) globose about  
12" <sup>long</sup> & 8" high no flowers seen

E. pottsii <sup>uncinatus</sup> Stoney hills along Rio Grande from  
El Paso downward and at Eagle Springs

E. albispinus <sup>conspicuus</sup> ~~globose~~ <sup>yellow</sup> on the Llano on rocky ledges  
on the San Pedro, San Felipe <sup>to Eagle pass & Sta. Rosa</sup> Ovate - globose,

glandular 8 inches high. large yellow flower

E. Wrightii <sup>sp.</sup> near St. Elmo (Aston) & Blanco & San Pedro  
(or spinosus) in poor sandy Petoak woods - yellow flower

Echinocactus <sup>var. acanthus & reticulatus</sup> reverchii 2-3 species from El Paso

E. breviflora n.sp.

Mammillaria sandy soil along the Rio Grande from  
El Paso down to the Cañon yellow flower

M. macromeris in loose sand <sup>hills</sup> <sup>confined by roots of Agave</sup> in the Rio Grande valley.

above El Paso and also east as far  
as the Pecos and common at Presidio del Norte

M. descoingsii valley of the Pecos & San Pedro

M. strobiliformis <sup>tuberculata</sup> (tuberous below surface) on the  
top & sides of mountains along Rio Grande from  
El Paso to Eagle Springs. light pink almost bluish  
flowers

M. calvaertae <sup>8-10</sup> similis valley of the Nueces, stony soil

M. meiacantha stony hills for El Paso east

M. cespitosa <sup>hemicryptophyton</sup> same localities

M. Echinus on the Pecos on hillsides, gentle  
slopes

M. radiopina limestone hills. dry, low hills on the Pecos



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M. Jochassic on Monterrey eastern slope above  
El Paso and toward Chihuahua  
M. Diacristata Coppermine  
on naked places

M. micromeris mountain tops & sides from El Paso  
to San Pedro, only on limestone, not seen on Bighorn  
soil — also found east of the R. Pdo. slender  
in one locality. fl. central, 3 l. long very light pinkish  
M. lasiacantha Corcoran the spring & & con spring on  
low hills & on limestone hills among herbage  
fruit scarlet.

14 spec.

Ceratocarpus Greggii rather isolated, from El Paso  
to the P. Rosas & then again near the Minibres Mts.  
(west of the Rio Grande) in porphyritic formation  
in alluvial stony soil, 3-4 feet high —  
fol. deep ~~purple~~ <sup>purple</sup> scaly, spiny like the plant —  
alternate, flower <sup>long</sup> ~~scarce~~ <sup>scarce</sup> attached; fruit quite  
succulent. — few erect branches — dark green  
ripe in June & July

C. strumosus <sup>angustifolius</sup> hills near El Paso, much branched  
fl. B. all. flowers (yellow?) <sup>purple red, white to orange</sup> subterranea. the large

C. austrius ? El Paso

C. albiflorus (white flat long spines) from El Paso  
to San Pedro on rocky ledges, limestone  
6 inches high <sup>densely</sup> ~~coarse~~, spreading — large  
orange flowers, opening up at night & day  
C. nigropinnatus <sup>flavescens</sup> hillsides of El Paso with  
a spike, highly branched, flowers open at night — flower 6 weeks - 2 months

C. Roemerii ? <sup>at night flowers, fl. open at night</sup> flowers open day & night, narrow

C. viridiflorus ? <sup>long?</sup> (small one) 3-6 inches high very  
rarely branching — flowers toward the top of plant.

about 1 inch <sup>lustrous</sup> — grows on stony hills, El Paso

C. multiflorus <sup>ulamantius</sup> (large spines) hillsides  
at the Dragoon, porphyritic soil, 8 inches; flower  
seen — fruit low down on the plant, small  
flask larger than test. — El Paso on the base of Mts.



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C. Caspitosus as far west as San Pedro,  
abundant in the valley of that stream

C. Desyacanthus yellow flowers large  
El Paso

C. heterotrichus valleys at head of Limpio  
Torojito mountains — simple —  
(C. pectinatus? Tercos?)

12 sp. <sup>Nov 9 1851</sup> & in one of his letters <sup>Nov 9 1851</sup> Longfellow says he knows only one C. opuntia with red flowers: on the head of the Limpio

Opuntia Engelmanni (Lindley) rocky ledges, El Paso, sides  
of canions to the top of mountains, 4-6 feet high, fruits  
often larger than the specimen, flower large,  
yellow, fruit thick bristly not spiny, purple  
the same? (rotten) Canon of the Rio Grande —

Opuntia ~~acanthocarpa~~ <sup>leptophylla</sup> (337) not prostrate but somewhat ascending  
San Elizario, below El Paso in fertile bottom land  
of the A. Gr. very remarkably slender —  
found only in one place

O. parva (332) 1-2 feet high spreading  
and forming a bush, 2-3 feet diameter, common  
near El Paso on sandy ridges near market bags by

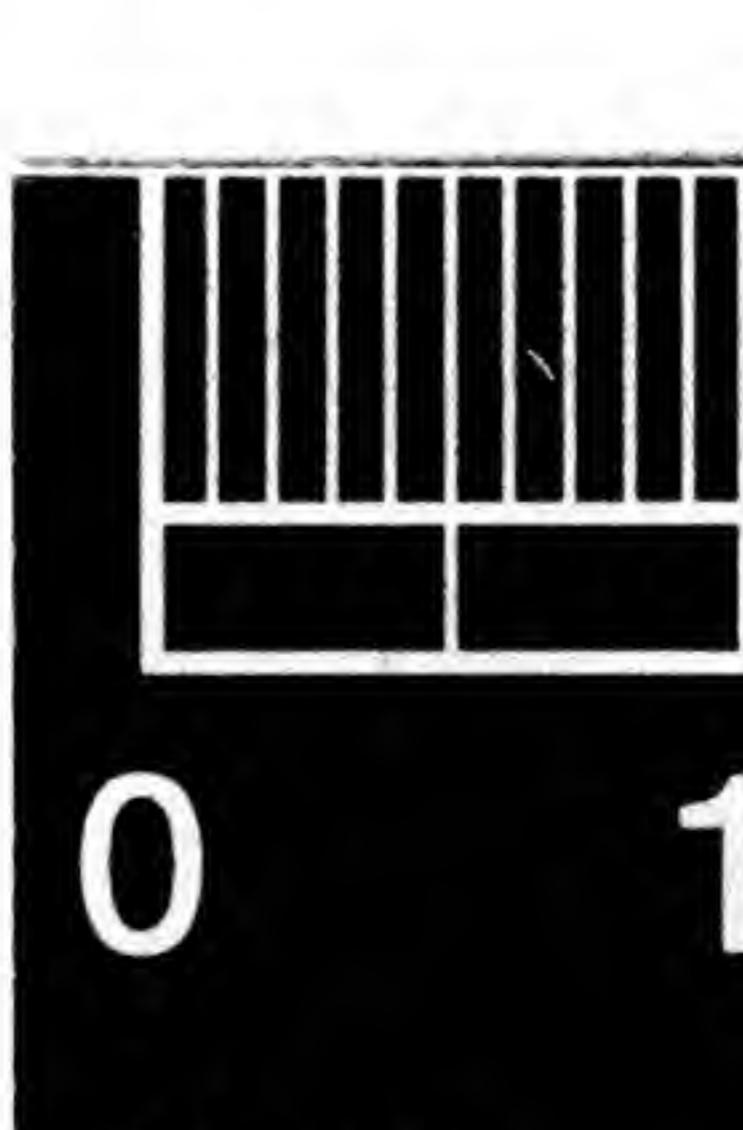
O. scapoidea 60 miles west of the Tercos in  
masses of flat naked limestone rocks, <sup>new Ad. 1851</sup> about 2  
feet high rather erect — not seen

O. fragilis (511) abundantly about Tercos

O. macrocarpa alluvial prairies (no stones)  
between Rio Grande & Tercos (also on Coppermine?)

O. clavarioides rock bluffs, stony hills  
near El Paso — far thence to the Cedar. Yellow  
flowers similar to those of O. clavata —

O. macroclavata <sup>Conothopala</sup> <sup>south of</sup> El Paso and 40 miles  
very sandy soil <sup>Conothopala</sup> older perhaps = O. Hauryi  
= O. bigelowii!



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west to Sonora

O. arborescens east as far as Pecos, common  
about El Paso in valleys, <sup>wetly</sup> fertile soil; fruit  
yellow almost dry. — 3 to 6 feet high in

O. Wrightii along the cactus garrisons, but  
is short & ~~calculated~~ <sup>steep</sup> on rocky mountain sides  
among bushes <sup>on the Limpis</sup> — 2-4 feet high not much branching —  
flowers same color the above as the yellow  
O. virginiana

O. pentandra

12 spm O. Argentea orange fruit

31 — in flower = El Paso = 30 + 29 (Aug 28)

32 — Notes of Wright on Cactusaceae by him 1851  
and growing with me now

No 11 is M. radiosa

Aug 1852

25 = 26 very Cactus, flowering very early in season, earlier  
than the <sup>other</sup> species, near Roemer.

32 Chionanthus ?

33 = 34 = 17

31 = 30 for El Paso with green flowers

29 = 28 perhaps the same as last ?

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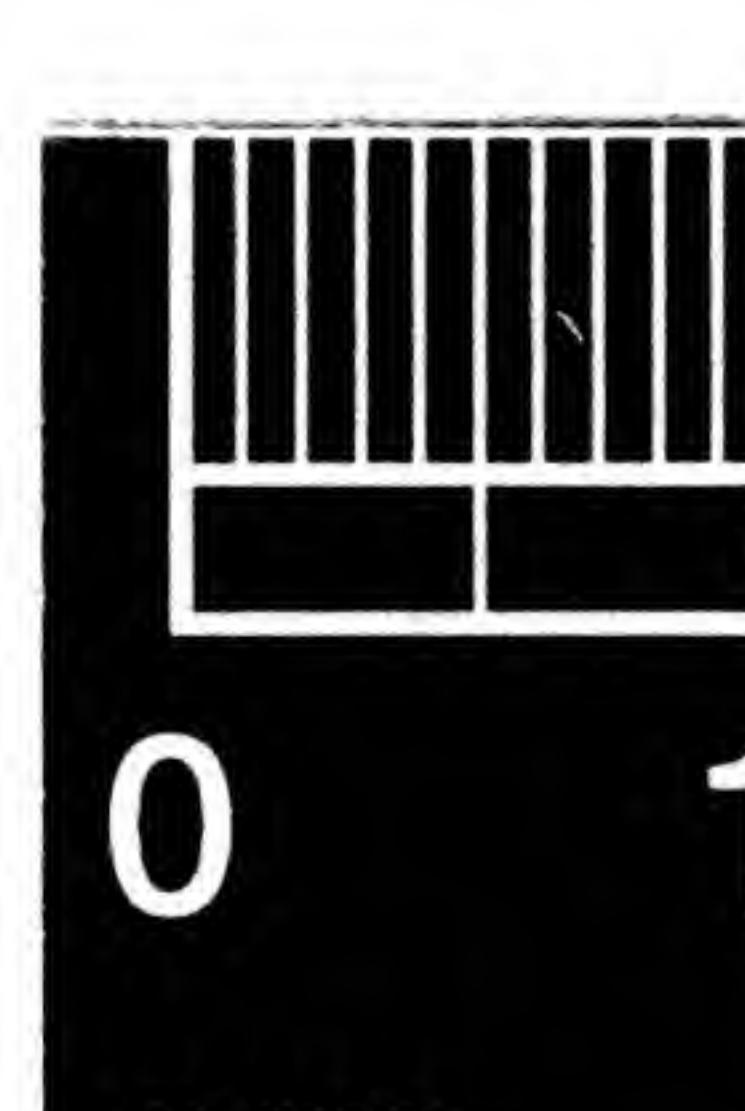
9 Chionanthus

14 Mannii Manii

12 Cerci

12 Opuntiae

44 Species Cactaceae



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Recd Jan 5<sup>th</sup> 1852  
Ans May 20<sup>th</sup>

Extract of Ch' Wright's letter dated  
(letter sent to Gray)

Camp near Dona Ana Nov 9  
1851

Expedition with rest of the Coppermex, return  
by Col Cook's route south of the Gila, as far as the San Pedro.  
— The most remarkable Cactaceae I saw was an *Opuntia*  
closely allied to *O. Clavata* but larger in all parts  
and (as you say) horribly spiny - no specimens saved.  
— 2 species of *Cuscuta* — Yucca with bases  
2-3 inches long — Crimson *Hedysarum* — A *Cornthamia*  
plant growing on Cedar different from one so common  
at the Cobre — 3 annual *Desmodium* —  
Numerous *Poppyblossom*. — *Mannill. radiosa* from  
Texas to Northern Sonora — range of Cacti larger  
than you imagine —

Two very distinct *Opuntiae* grow about the Cobre  
one humble, very dark green obovate very obtuse joints  
with few spines, dark green narrow lanceolate small  
fruit, with few seeds.

The other is high, has many large glaucous-green  
orbicular, spiny joints, and large depressed, many-  
seeded purple fruit. [ *O. lagilmanni* ? ]

The only purple flowered *Opuntia* elliptica seen  
by me was near the head of the Limpia.

*Opuntia arborescens* ranges from the Roos to  
northern Sonora <sup>a few</sup>

I will send you as soon as possible <sup>a few</sup> *Cactaceae*  
for Cobre who starts *Euphorbia* ?

Send me six sheets of Newspapers in regard to  
the Boundary affair.



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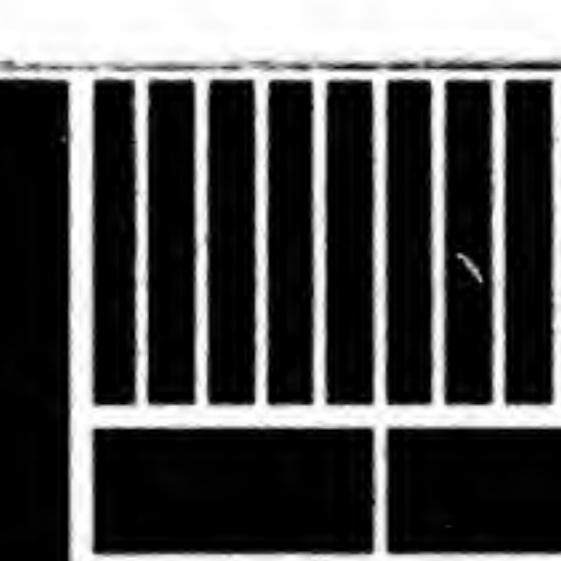
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Marie D. Bigelow verbal remarks  
June 1853

Cereus giganteus also in the bottom  
C. Roemerii on the hills with Ech. catifoliat  
at the base of Mountains - there also.  
C. chloranthus common

Op. Emoryi near the Coppermines at 60 miles  
south of El Paso in gravelly soil, but not  
near El Paso

Write L. aculeata not L. aculeata

M. echinatus with straight and <sup>rarely</sup> curved spines  
at (Eaglepass)  $\approx$  Presidio de Norte

M. appresseda about Eaglepass abundantly

Ech. setiferum Eaglepass abundantly 6 miles high

P. flexuosa ripe berries <sup>very</sup> acid, very juicy  
of a purplish green colour

P. uncinatus fruit oblong not ovate,  
pale red

E. Texensis as far west as the Rios  
where this and E. californica alternate  
on the plain between the Rios and the  
Limpia Mountains. E. Texensis also  
at Eaglepass

E. secundiflora, Eaglepass I go there to  
Ruta Rosa - also ~~and~~ ~~near~~ Rio -

Ech. pulchellus always long fleshy root, sometimes  
with 2 heads - short yellow flowers - The smallest  
of all our Echinocactus - at Eaglepass in  
a gravelly place, where water runs dry in

Nopal Castillana is common at La Rosa  
grows 10-12 feet high, joints 12 inches - 15  
long, always elongated, without spines  
this said to be delicious

C. Roemerii common at El Paso

[ probably dentata with C. polyacanthus and  
not with C. Roemerii! ]



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*Ceratonia siliqua* common at Eagle pass, also  
on the San Pedro & Rio, also No. 20, it always looks  
shrubbed, even when in vigorous growth.

No. 25 & 26 from San Pedro (not El Paso) are  
the Clarkspine *Ceratonia plicispina*.

21. 22. 23. *C. polyacanthus* with open, compound  
flowers.

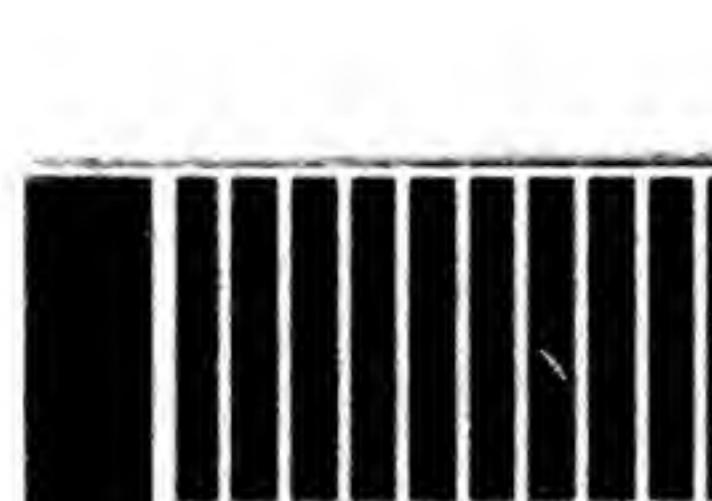
27 (2 pots) perhaps *C. canescens* (formerly  
named Callispina by me).

It is doubtful whether I have a specimen of  
the *C. mollis* living.

*C. Greggii* common near Pando de Norte  
(Paraguay)

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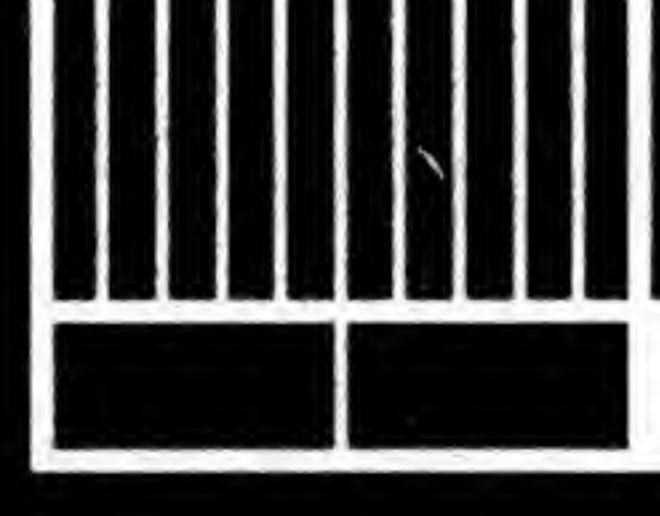

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Cactus notes of  
Dr. Bigelow.  
(Eng. Coll. Notes, 15,  
p. 2026).

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Man. Semipes l. Engl.

high prairie nearly denuded  
of grass - 20 miles west of Beaver  
or old fort Arbuckle near the  
Canadian river - Aug 22<sup>o</sup> 1853.

Found "in large spreading  
caespitose masses" Scie fr. -

Summit of natural mound near  
rock Mary 322 miles west of  
Fort Smith. - 122 miles west  
old fort Arbuckle. It grows  
more simple here. -

I copy the following notes  
of my journal - "Nearly simple  
globose or sub-globose; tubers  
ovate 7-9 lines long 4-6 lines  
broad [in diameter]; spines  
all radical, about 13, white,  
5-9 lines long; anolae orbicular



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white lomentose; fruit ovoid, red,  
not crowned with the remains of  
the flower, on last year growth  
or older portions of the plant.

Plant about 1-2 inches high  
and about the same in [diametrical]  
breadth" The specimens col-  
lected near Beaver further east  
were not so large. -

—

Man. Padiosa! Engl.

Scattered sand earth prairie  
near Antelope hills, 412 miles  
west of Fort Smith - Sept.  
4th, 1853. -

Sandy arroyas near the Cana-  
dian 446 mile, west of Fort Smith  
Sept 7th 1853 put Specimen in Box  
collected it near mouth of  
Valley river about 475 miles west.



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of Fort Smith Sept. 8th/53

collected specimens in herb  
and living at the crest of Sandia  
Mountain, near Albuquerque about  
13000 feet above the level of the sea

Oct. 10th. - The plant here is very  
spiny [spines mostly white] and  
interlaced: much branching. -

Specimens in herb as  
recently proliferous collected  
on grassy places on hills near  
the Rio, some 40 or 50 miles east  
or south east of Santa Fe

Oct. 13th. -

collected living plants for  
key box what I suppose to be  
this at Laguna a Mexican  
or Pueblo about 42 miles west  
of Albuquerque Nov. 12<sup>th</sup> 1853

At Mogollon creek about 200  
miles west of Albuquerque I saw



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the old species of this mammill which  
is the only one we found in this region  
Dec. 14th 1853

Found here also a Marm. which  
appears to be this. Near San Fran-  
cisco Mountain about 310 miles  
west of Albuquerque. - Decr. 15th  
1853 -

Near Bill Williams Mountain  
about 380 miles west of Albuquerque  
I saw the only M. in this region  
which appears to be this. January  
1st 1854. - Jan. 4th still further  
west saw the same.

In what we call Aztec  
Mountains about 530 miles  
west of Albuquerque I saw 17th  
is the last place I noted having  
seen this plant. -



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Man. Meiacantha, Engl. (ind.)

In piñon and cedar woods and  
plain about 50 miles east of the  
Pecos I first find this plant.

Sept 23<sup>rd</sup> 1853.

Autumn color on the Pecos  
it also abundant Sept. 27<sup>th</sup> 1853.

I make here the following  
notes - "Milky subhaemispherical  
or rather obconic with a rounded  
top [this description made after  
taken out of the ground] with  
a rounded top. — Tuberous,  
somewhat pyramidal, below very  
slightly quadrangular 3-5 lines  
long about and nearly 3-4 lines  
wide at base. — Spines all  
radial 6-8, white very slightly  
tipped with purple" [brown]  
[I find in my specimens brought  
home in the herbarium some of



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Spines are quite brown their whole  
length] 2-4 lines long straight  
[I also find some specimens with  
curved spines] - Berry red, sub  
oval about 6-8 lines long 5-7  
lines in diameter. - Plant  
nearly even with the surface  
of the ground about 3½ inches  
in diameter and the same in  
depth. - Common on prairies  
and cedar woods. -

Mammillaria? Engl.

Plains at Hunah creek 30  
miles east of the Pecos Sept  
25<sup>th</sup> 1853. -

Hills near Anton Chico on  
the Pecos Sept 26<sup>th</sup> 1853. -

Simple, globose some-  
times somewhat depressed



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or subhaemispherical - tubules  
cylindrical terete 5-9 lines  
long 2-3 lines in diameter; radicle  
spicis white [in my specimen, I  
sometimes find 3 or 4 upper ones  
are brown or tipped with brown]  
about 12, slender, nearly equal  
4-6 lines long sometimes slightly  
tipped with purple - central  
1-2 slender 5-9 lines long  
reddish brown sharply [shortly]  
hooked at the point; erect  
when only one diverging when  
two. — fruit large sub-globosa  
or ovata, purple, crowned  
with the remains of the flower  
(on the present year growth)  
Plant about 2 inches high &  
the same in diameter - many  
are smaller -



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Man. grahamii Engl. (ined.)

Globose; - tubercles, ovate? 2-4  
lines, long? - are older somewhat  
ovate. - radial spines, white  
slender (pine like hairs)  $1\frac{1}{2}$  inches  
long 14-15 very much interlaced  
close set at base in a single series,  
- central spine, 1-2 hooked  
at point, a little stouter, 1 inch  
long, whitish at base and  
somewhat bulbous, reddish  
or light brown at top plants  
small  $1\frac{1}{4}$  inch high same  
in diameter on gravelly and  
rocky hills in highlands of Cactus  
Pass 13 miles east of the Rio  
Colorado. January 26th  
1854. -



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Man. Phellosperma Engl. (in)

M. tetrancistra Engl. (Note,

on Cer. gigantea, Sill Journal)

[In my label on this plant I say the "valley of the Mohave". We did not strike the Mohave valley until we had travelled about 100 miles westward of the Colorado] This description is made from a plant collected about 30 miles west of the Colorado March 31<sup>st</sup> 1854.

Simple or branched, oval, tubercles, teeth, about 6-7 lines, long and some what dis-  
tant, areolae, orbicular, sets  
with interlacing radial spines,  
in apparently 2 or 3 lines, very  
numerous from 30-60 white  
or sometimes thin points tipped  
with brown 4-6 lines long



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very slender - central spines 1-4  
hooked upwardly upper half  
deep brown lower lighter, and  
sometimes nearly white, 6-8  
lines long. - fruit oval pear  
shaped or somewhat obovate  
about 6 lines long and 4 lines in  
diameter. - Plant 2-6 inches  
high. -

Feby 4<sup>th</sup> about 50 miles <sup>west</sup>  
of Cactus <sup>Pass</sup> near where I collect  
*M. Grahamii* I make the following  
notes: - "I find here a man.  
much resembling the the hooked  
spined one collected at needle  
rock in the mountains of  
Cactus Pass but differs from  
it by the tubercles being much  
larger & more prominent.



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Feby 23<sup>rd</sup> 1854. - In the  
valley of the Colorado but on  
its eastern shore I collected  
a Mow. having 1-3 central  
spines hooked like those  
before collected and I believe  
described [This is not described]  
with a ped. clavate very and  
somewhat ovate stems. -

Dr. Engelmann describes *M*  
*tetrancistra* as having 4  
cross hooked spines, dis-  
tinguished from *M. Goodrichii*  
by the last having but one cen-  
tral hooked spine. It may  
be possible that mine will  
unite the two - although it is  
not impossible to be dis-  
tinguished from both as Dr. Eng-  
mann represents the fruit  
of those [*M. tetrancistra*]



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as being pear shaped - this of  
mine is clavate. - Sometime,  
limp and sometime, consider-  
ably branched or caespitose

===== "

===== "

*Echinocactus Whipplei*

Obate-globose, ribs about 15,  
areolae approximate, spines  
closely interlaced whitish, angular  
or flattened - radial spines about  
8 - nearly round or somewhat angular  
[flattened] about 10 lines long -  
upper radial flattened on its under  
surface somewhat convex on its  
upper - 15-18 lines long. Central  
spines 3, angled 2 upper straight  
lower one sharply hooked downward  
15-18 lines long - Plank dead but  
retaining the outline of its figure



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apparently 3-3½ inches high  
2-2½ inches in diameter.  
Low sandy plain along the bottom  
of Lithodendron creek near  
~~Colorado~~ Chiquito about  
220 miles west of the Rio  
Grande at Albuquerque.  
Dec. 3<sup>rd</sup> 1853. - Found here  
live specimens but mostly small  
Dec. 4<sup>th</sup> 1853 -

I afterwards found living speci-  
mens and collected them in  
the valley of the Colorado Chiquito  
but find I made no notes.  
They are now in the Congressional  
garden Washington.

---

Ech. ~~ff~~ <sup>ff</sup> Cortes  
Ech. Histigone! Engelm.

I first saw this plant near  
White Cliff creek among the



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mountains of Cactus Pass. about  
500 miles west of the Rio Grande  
at Albuquerque and 160 miles  
west of San Francisco. January.  
28th 1854. —

Feby 7th 1854 in the Valley  
of Bill Williams fork in great  
abundance most in rocky arroyos  
March 2<sup>nd</sup> 1854 I find it  
growing 4 or 5 feet high on gravelly  
plains 30 miles west of the Rio  
Colorado. —

March 4th Find it  
in great abundance still  
further west. —

---

*Engelmanni* Ag. n.s.  
Ech. ~~*Cylindraceus* sp. nov. Engelm.~~  
~~(*E. Nickerseus* var. *Cylindraceus*)~~  
~~*Ech.* *Cereus giganteus* Liebm.~~  
Branching from the root forming



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large bunches - heads globose  
[afterwards found it ovate  
and cylindrical] 5-9 inches  
high and same in diameter -  
ribs 13-21, straight acute  
grooves deep - areolar or-  
biculum white woolly when  
young, not elevated above the  
interval, - Spines 8-15 [so-  
~~times even 21. I believe~~] all very  
stout compressed and an-  
nulated, central one longest  
2 1/2-3 inches long. Slightly  
carinated on its upper and lower  
surfaces, making it also in-  
= nearly 4 angled - radial spines  
spread and curved outwards  
- the 2 lower spreading first  
outwards and then curving  
inwards at their points. -  
All covered with a whitish



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lomentum or pubescence excepting  
at their tips which gives them a  
brownish color. - Fruit in the  
ovary, subglobose, or ovate,  
crowned with the remains of the  
flower - 5 scales of the fruit lan-  
ceolate subulate, almost entirely  
covered with the whitish wool.

Seeds curved pyriform, black  
finely rugose or tuber cutated

On stony and gravelly hills and  
dry arroyos. - One day's  
march from the Colorado  
March 2<sup>nd</sup> 1854 -

About 70 miles west of the  
Rio Colorado I find it growing  
12-15 inches high 8-10 inches  
in diameter giving it quite  
an ovate form. Mar. 7<sup>th</sup>

March 9<sup>th</sup> 1854 Find near the  
Mojave over 100 miles west of



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the Colorado the plant of which  
I note as follows: "The  
New *Echinocactus* which I  
find in this region and which  
I noted when first found as  
being globose and but about  
8 or 10 inches high is here  
2 feet high with a diameter of  
but about 10 inches giving it  
nearly a cylindrical form &  
grown in immense bunches  
of upwards of 30 heads from  
one root. - The spines are also  
very various in length & number  
all always very stout and  
rigid. - The number varies from  
9-15. -

March 10th find it  $2\frac{1}{2}$   
feet high the highest I have  
yet seen it.

March 13<sup>th</sup> 100 miles west



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of the Rio Colorado is the western  
limit of my notes of this plant

—#—

Echinocactus polyacanthus

Ovate or sometimes elongated  
ribs 13-17 rather obtuse, some-  
what tuberculated - areolas  
orbicularis elevated, reddish  
tomentose when young. - radial  
spines about 18 white. Centrone  
spines 6-9 of two kinds 4-6

[I find in Specimens here sometimes 8]

lower ones bright brown  
with hook, at their points, white  
on the convexity of the hooks 2  
upper & lateral brown curved  
upwards, but not hooked.  
Upper one long white sometimes  
4 angled and compressed, tipped  
with a purple point - radial



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spines, 8-15 lines long, lower  
central 1-3 inches long, upper  
ones longest, upper central  
white spine 3-5 inches long. -  
Buds in the vertex. - Plant  
4-10 inches high. [about  
4 inches in diameter from scroll  
action] On coarse gravelly  
hills. - Found some dead specimens  
on the sandy plains between the  
river & surrounding hills  
Headwaters of the Mojave  
river one day before reaching  
the Cajon Pass of the Sierra  
Nevada mts. March 15th  
1857. -



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
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